PALEONTOLOGY.—Cardiniferella, *n. gen., the type of a new family of Carboniferous Ostracoda.* I. G. Sohn,[1] U. S. Geological Survey. (Communicated by J. S. Williams.)

The upper part of the Helms formation of western Texas contains an abundant ostracode fauna both in the limestones and in the interbedded shales (Sohn, 1950). These faunules, according to present-day knowledge, closely resemble the Chester ostracodes described by Cooper (1941) from Illinois. The new genus described here is restricted to the limestone beds, where it is relatively abundant as silicified specimens in insoluble residues resulting from digestion with hydrochloric acid. It has a "kirkbyan pit," a character that would place this genus in the family Kirkbyidae, were it not lacking the marginal rims that characterize genera in this family. The hingement in *Cardiniferella* is hitherto unrecorded in the Ostracoda.

Two recently published papers emphasize the variation and consequently the importance of hingement in the classification of fossil ostracodes. Levinson (1950) analyzes the hingements of several Paleozoic genera. He illustrates the hinge elements of *Ulrichia bituberculata* (McCoy) (p. 70, figs. 8a, b); this species is probably not a true *Ulrichia*, but it illustrates the hinge elements of some Kirkbyidae. Triebel (1950) analyzes the hingement of several post-Paleozoic genera, and defines (p. 313) the following types of hingement:

Merodont, only one valve dentate.
Amphidont, both valves with one or more hinge teeth.

Because *Basslerella* Kellett, 1935, from rocks of late Paleozoic age, has a merodont dentition Triebel assumes (pp. 313–314) that amphidont dentition developed from merodont. The relatively advanced amphidont hingement described in this paper does not shed any light on this assumption, because Triebel deals with genera in the family Cytheridae (suborder Podocopa). This paper deals with a new family that is in the same higher group as the Kirkbyidae, which probably belongs to a different suborder. It is premature to speculate regarding the phylogenetic relationship and evolution of the different types of dentition found in Ostracoda because the dentition of many Paleozoic genera has not as yet been worked out and because there are all too many undescribed genera that probably contain important clues to the development of the Ostracoda.

The writer is grateful to Arthur L. Bowsher, U. S. Geological Survey, for making available the insoluble residues of his collections from the Helms formation of Texas, in which the new genus occurs, and to Dr. C. C. Branson, University of Oklahoma, Norman, Okla., who collected additional material at the type locality.

CARDINIFERELLIDAE Sohn, n. fam.

Straight-backed reticulated marine ostracodes with "kirkbyan pit" and amphidont hinge.

This family differs from Kirkbyidae in hingement and in the absence of marginal ridges. *Tomiella* Spizharsky (1937, pp. 143–146, 166) differs from the Kirkbyidae in not having marginal ridges, but it does not belong in the Cardiniferellidae because of its simple hinge.

Cardiniferella Sohn, n. gen.

Type species: *C. bowsheri*, n. sp.

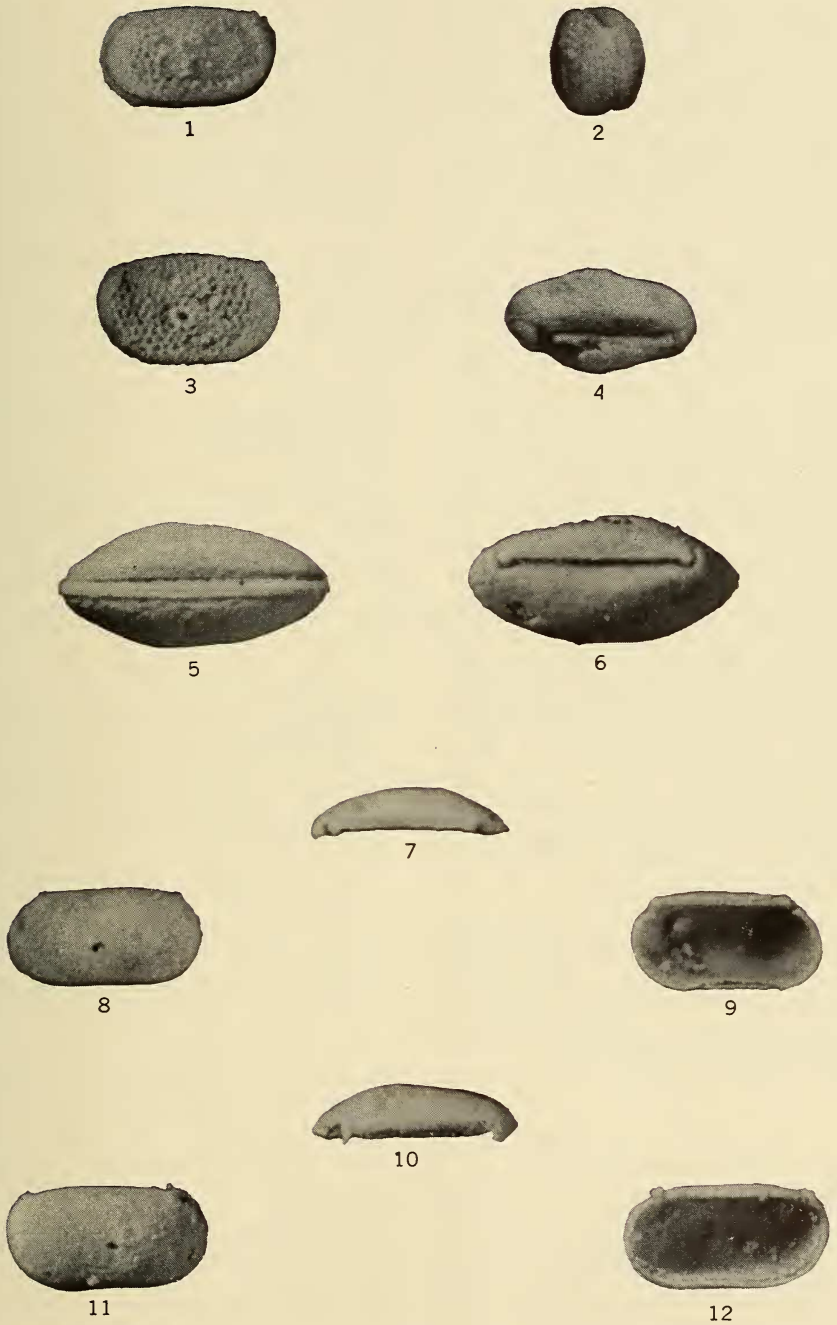
Subovate, straight-hinged ostracodes, lateral surface reticulate, except for smooth marginal area. Hinge incised, amphidont. Overlap slight, marginal area of one valve grooved to receive smaller valve. Muscle scar pit subcentrally located.

This genus differs from all previously described genera in hingement. *Amphissites* has a somewhat similar hingement in that the larger valve overlaps the accommodation groove at the ends and fits into terminal sockets that open to the outside, but the grooved or smaller valve does not have terminal teeth, thus resulting in a merodont hingement. The same features distinguish the cardiniferelloid hinge from the sansabelloid (Kloedenellidae) hinge, and from the hinges of several late Paleozoic genera placed in Leperditellidae.

Cardiniferella bowsheri Sohn, n. sp.
Figs. 1–12

Subovate in lateral view; dorsal and ventral

[1] Publication authorized by the Director, U. S. Geological Survey.



Figs. 1–12.—*Cardiniferella bowsheri* Sohn, n. gen., n. sp.: 1, 2, Left and anterior views of paratype U.S.N.M. 118306 from U.S.N.M. loc. 3069-2 (note smooth area where reticulations were abraided, and anterior tooth of right valve); 3, 4, right and dorsal views of holotype, U.S.N.M. 118307 from U.S.G.S. loc. 10889 (3, because the specimen is tilted backward, the pit appears on the photograph to be farther towards the posterior than it actually is; 4 is oriented with anterior to the left); 5, 6, ventral and dorsal views of a smooth specimen, paratype U.S.N.M. 118308 from U.S.N.M. loc. 3070-2 (5 is oriented with anterior to left, 6 with anterior to right); 7–12, dorsal, lateral, and interior views of opposing valves of a carapace that was opened for the purpose of illustrating the hingement (7–9, left valve, 10–12, right valve, paratype U.S.N.M. 118309 from U.S.N.M. loc. 3070-2; note reflection of muscle scar pit on inside of Fig. 12; the anterior cardinal portion of fig. 10 is broken). (Magnification approx. ×30)

margins straight, subparallel. End margins curved, greatest curvature of anterior margin lower than that of posterior. Lateral surface reticulated, marginal areas and dorsum nonreticulated. Oval "kirkbyan pit" located anterior to midlength and slightly below midheight. Hingement incised, amphidont, consists of an accommodation groove in the smaller valve terminated by rounded, tenonlike teeth that are bounded by sockets that open to the outside. The dorsal edge of the overlapping valve terminated by accommodating mortiselike sockets that are open dorsally; these are flanked by terminal teeth that consist of an enlargement of the overlapping portion of the larger valve. The overlapping valve has a groove along the marginal area to receive the bevelled edge of the smaller valve. This grooved zone is offset from the valve surface, resulting in a rimlike pleat on the outside of the valve. The smaller valve has a narrow bevelled edge bordered by a thin strip that seals the closing valves. A very narrow duplicature is suggested in many specimens by a thin zone that borders the inside of the overlapping structures of both valves. Dorsal and ventral outlines subovate, greatest convexity just in front of muscle scar pit.

Cyathus vetustus Cooper, 1941, resembles this species in outline; it differs in the hingement and in the absence of a subcentral muscle scar pit, and it is devoid of reticulations.

The preservation of many of the specimens does not show the reticulation (Figs. 5–12), but the presence of specimens with patches of the reticulations abraded (Fig. 1) indicates that the smooth forms having the characteristic outlines and hingement are conspecific with the reticulated forms.

Measurements	*Greatest length (mm)*
Holotype, Figs. 3, 4, U.S.N.M. 118307	0.81
Paratype, Figs. 1, 2, U.S.N.M. 118306	0.86
Paratype, Figs. 5, 6, U.S.N.M. 118308	1.27
Paratype, Fig. 8, U.S.N.M. 118309	0.93
Paratype, Fig. 11, U.S.N.M. 118309	0.98

Type locality.—U.S.G.S. 10889 Helms formation, El Paso quadrangle, Tex., 2½ miles west of Powwow Tanks, approximately 30° 50′ 17″ N., 106° 04′ 40″ W. Stop 13, West Texas Geol. Soc. Guidebook, Field Trip 5, 1949, and limestone bed 9, sec. "C" West Texas Geol. Soc. Field Trip May–June 1946 (stop 1 on map accompanying that trip). Coll. C. C. Branson, November 1949, A. L. Bowsher, 1948 (U.S.N.M. locality 3070-2).

Distribution.—This species is abundant also in bed 11 of the same section (U.S.N.M. locality 3070-4), and at approximately the same stratigraphic level in a saddle 1.1 miles west of Powwow Tanks, approximately 31° 50′ 16″ N., 106° 02′ 55″ W. (U.S.N.M. locality 3069-2).

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BOTANY.—*Some new combinations in Guatemalan Bromeliaceae.* Lyman B. Smith, Department of Botany, U. S. National Museum.

The following new combinations are necessary preliminary to the publication of the Bromeliaceae in a projected part of the Flora of Guatemala by Standley and Steyermark.

Tillandsia elongata H. B. K. var. **subimbricata** (Baker) L. B. Smith, comb. nov.

Tillandsia subimbricata Baker, Journ. Bot. **25**: 304. 1887.

In 1889 André (Brom. Andr. 96) indicated that he did not consider *Tillandsia subimbricata* specifically distinct from *T. elongata*, although he failed to make any combination for it. Subsequent collections have shown a series of intergradations that amply justify André's opinion.

Tillandsia tricolor Schlecht. & Cham. var. **melanocrater** (L. B. Smith) L. B. Smith, comb. nov.

Tillandsia melanopus E. Morr. ex Mez. in DC. Monogr. Phan. **9**: 680. 1896, in large part but not as to type.

Tillandsia melanocrater L. B. Smith, Contr. Gray Herb. **117**: 31. 1937.